SECTION 701

PEDESTAL PILES

701.1 Description. This work shall consist of constructing a cylindrical reinforced concrete shaft cast-in-place to serve as a pedestal pile foundation for a structure.

701.2 Material.

701.2.1 All material shall conform to Division 1000, Materials Details, and specifically as follows:

Item	Section
Reinforcing Steel for Concrete	1036

Pedestal piles shall be made of Class B concrete, and all material, proportioning, air-entraining, mixing, slump and transporting of concrete shall be in accordance with Sec 501.

701.3 Equipment. Casing, if used, shall be a metal shell of ample thickness and strength to withstand stress and avoid distortion due to handling, the internal pressure of plastic concrete, and the external pressure of the surrounding earth and water, and shall be watertight. The inside diameter of the casing shall be equal to the diameter of the pile.

701.4 Construction Requirements.

701.4.1 Excavation for a pedestal pile may be made by hand methods or with a power-driven boring machine as an open well, inside or through a casing, or any combination of these methods, and shall include excavating through whatever material is encountered. The elevations of the bottom of pedestal piles shown on the plans are approximate only and may be raised or lowered by the engineer depending upon the conditions encountered. The shaft shall be sunk vertically within a tolerance of one inch in 10 feet (8 mm/m). The bottom of the excavation shall be cleaned of all loose boulders and loose or scaly shale or rock. The pile shall be keyed or cast into the foundation material as directed by the engineer.

701.4.2 Where soil conditions permit, the shafts for pedestal piles may be excavated without the use of casings. If the excavation reaches a point where caving conditions or ground water seepage is encountered, a construction method shall be employed which will prevent any caving that tends to make the excavation appreciably larger than the size of the pile. The contractor may install casings to facilitate construction of pedestal piles. Withdrawal of casings will not be required unless otherwise specified in the contract. Casings to be left in place shall be installed in such manner that there will be no voids between the earth and the casing. The casing shall not extend more than 12 inches (300 mm) below the top of satisfactory foundation material. No payment will be allowed for any concrete or other material required because of an oversize casing or oversize excavation. If the elevation of the top of pedestal pile is below ground level at the time of concrete placement, an oversize casing from ground elevation to a point below the top of the pedestal pile will be required to prevent caving of any material into the freshly placed concrete.

701.4.3 After excavating is completed, and if specified by the engineer, the contractor shall install a temporary casing for the protection of personnel working in or inspecting the shafts and foundation material. Such casing shall be removed either before or during the placing of concrete. The shaft shall be dewatered for inspection of the foundation material. The contractor shall provide fresh air ventilation, electric lights, suitable means of ingress and egress, and shall assist the engineer in making the required inspection of the shaft and foundation material. Test holes may be required by the engineer in accordance with Sec 206.3 and will be paid for in accordance with Sec 206.6.2.

701.4.4 The reinforcing steel cage for the pedestal pile shall be completely assembled and placed as a unit for the full length of the pile prior to placing any concrete. The cage shall be supported by some positive method to prevent its displacement. Approved spacers shall be provided at intervals along the cage to ensure concentric positioning for the entire length. Additional reinforcement may be added to stiffen the cage at the contractor's option and expense.

701.4.5 Concrete for the pedestal pile shall be placed as soon as practicable after the excavation has been completed and inspected. Concrete shall be placed through a suitable tube to prevent segregation of concrete material. The tube shall be of such construction that it will permit discharge and raising as the concrete placement progresses. If casings are to be removed, they shall be withdrawn as the concrete placement progresses. A 2-foot (600 mm) minimum head of concrete shall be maintained in the casing to prevent displacement of the fresh concrete by caving material. The concreting shall be a continuous operation except for the time interval necessary for retracting the casing. If the placing of concrete is delayed more than 45 minutes, or if any upward movement of concrete inside the casing occurs during the retraction, the pulling shall be stopped and that portion of the casing extending into the concrete shall be left in place. Casings to be removed shall be smooth and well oiled.

701.4.6 If an excavation cannot be practicably dewatered for the placement of concrete, the engineer may authorize a portion of the concrete to be placed under water. Concrete which is placed under water shall be Seal concrete in accordance with Sec 501. Concrete placed under water shall be carried to a height at least 2 feet (600 mm) above the bottom of the casing, and to a height sufficient to withstand the hydrostatic pressure. When this concrete has reached sufficient strength to withstand the hydrostatic pressure, the casing shall be dewatered and the remainder of the concrete placed in the dry.

701.4.7 No piling shall be driven or boring performed, either by jackhammer or drilled caisson methods, within a radius of 20 feet (6 m) of concrete that has taken initial set and has not attained a compressive strength of at least 1500 pounds per square inch (10 MPa). Compressive strength will be determined by tests made in accordance with MoDOT methods.

701.5 Method of Measurement.

701.5.1 Measurement will be made to the nearest 1/10 linear foot (0.1 m) of each pedestal pile in place. No direct payment will be made for excavation below the top of the pile, or for casings left in place.

701.5.2 Reinforcing steel will be measured and paid for in accordance with Sec 706. Additional longitudinal and horizontal reinforcement required to extend the length of the steel cage will be measured and paid for, but no payment will be allowed for reinforcement incorporated in any part of the work by the contractor for the contractor's convenience.

701.6 Basis of Payment.

701.6.1 The accepted quantity of pedestal pile will be paid for at the contract unit price per linear foot (meter) for the diameter of pile specified.

701.6.1.1 Payment for additional completed pile lengths in excess of the "longest pile" as hereinafter defined, up to a maximum of 8 feet (2 m), will be made at the contract unit price plus 25 percent.

701.6.1.2 Any work necessary to extend the length of pedestal piles more than 8 feet (2 m) in excess of the "longest pile" as hereinafter defined will be paid for as changes in the work in accordance with Sec 104.3.

701.6.1.3 The "longest pile" for the purpose of additional payment will be the maximum length pile, regardless of diameter, shown on the plans for interior bents of all bridges included in the contract.